

Title (en)
Dynamic random access memory system with bank conflict avoidance feature

Title (de)
DRAM-system mit Bankenkonfliktvermeidungsfähigkeit

Title (fr)
Système DRAM avec dispositif de prévention de conflit de bancs

Publication
EP 1345125 A3 20070404 (EN)

Application
EP 02258105 A 20021125

Priority
US 2533101 A 20011219

Abstract (en)
[origin: US2003115403A1] A memory system having multiple memory banks is configured to prevent bank conflict between access requests. The memory system includes a memory controller and a plurality of memory banks operatively coupled to the memory controller, with each of the memory banks configured for storing a plurality of data items. More particularly, a given data item is stored as multiple copies of the data item with a given one of the multiple copies in each of a designated minimum number of the memory banks. The memory controller is adapted to process requests for access to the data items stored in the memory banks in accordance with a specified bank access sequence. The minimum number of memory banks for storage of the multiple copies of the given data item may be determined as a function of a random cycle time and a random bank access delay of the memory banks, e.g., as an integer greater than or equal to a ratio of the random cycle time to the random bank access delay. The memory system is preferably operable in the above-described bank conflict avoidance mode as well as a standard random access mode. The memory system is particularly well-suited for use in an application involving an unbalanced ratio of read and write accesses, e.g., as an external tree memory for a network processor integrated circuit, but can also be used in numerous other processing device memory applications.

IPC 8 full level
G06F 12/06 (2006.01); **G06F 13/16** (2006.01); **G11C 7/00** (2006.01)

CPC (source: EP KR US)
G06F 13/1647 (2013.01 - EP US); **G11C 7/00** (2013.01 - KR); **Y02D 10/00** (2017.12 - EP US)

Citation (search report)

- [X] US 4766535 A 19880823 - AUERBACH DANIEL J [US], et al
- [X] US 5966143 A 19991012 - BRETERNITZ JR MAURICIO [US]
- [A] US 6088771 A 20000711 - STEELY JR SIMON C [US], et al

Cited by
EP2351035A4; KR101525282B1; EP3484156A1; CN109785880A; US10782886B2; US9343180B2; US9875814B2; US10037818B2; US10297340B2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

Designated extension state (EPC)
AL LT LV MK RO SI

DOCDB simple family (publication)
US 2003115403 A1 20030619; US 6944731 B2 20050913; EP 1345125 A2 20030917; EP 1345125 A3 20070404; EP 1345125 B1 20130925; JP 2003208353 A 20030725; JP 4369660 B2 20091125; KR 100963721 B1 20100614; KR 20030051406 A 20030625; TW 200304066 A 20030916; TW I255990 B 20060601

DOCDB simple family (application)
US 2533101 A 20011219; EP 02258105 A 20021125; JP 2002364520 A 20021217; KR 20020081396 A 20021218; TW 91134318 A 20021126